

Deep Dive Workshop on Waste-to Energy

Organized by ADB

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“Case study presentation on what Sri Lanka has done to date in relation to its INDCs and the impact WtE will have on mitigating GHG emissions”

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Sri Lanka

Content

- Background
- INCDS targets
- Sector progress
- Impact on WtE in mitigation of GHG emission
- Challenges and recommendation

Background

❑ Socio-Economic

Population 20.2 Million
Land area 65610 Km²
No. of HHs 4.7 Million
Literacy Rate ~ 93 %
Per Capita GDP 3600 US\$
GDP Growth rate ~ 8 %

❑ Energy Sector

Main Sources of Energy:

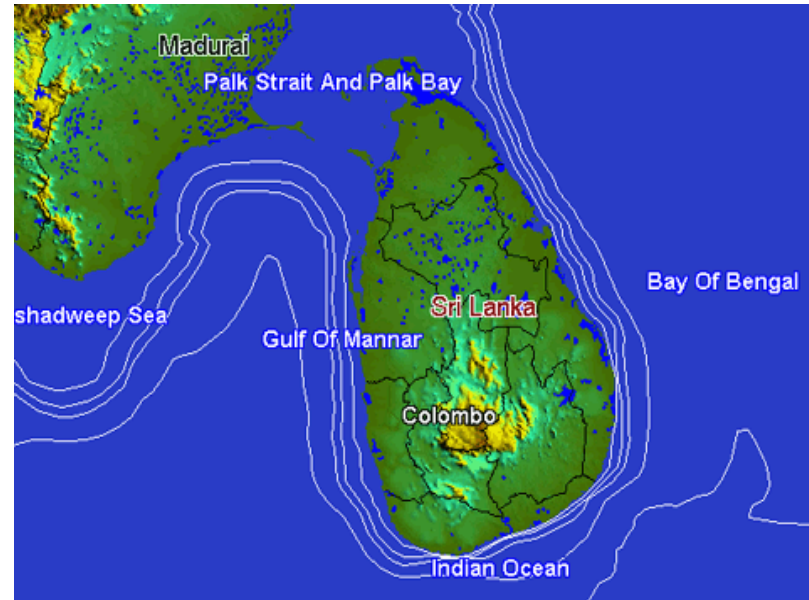
Biomass, Petroleum, Coal, Large hydro,
Other REs (Small hydro, wind, solar)

Total Consumption: 8.927 MToE

Industry 25.4 %
Transport 28.8 %
Domestic & Commercial 45.8 %

❑ Electricity Sector

Total Installed Capacity: 3900MW
Peak Load: 2200 MW
Gross Generation: 11,800 GWh
HH Electrification: 98 %



Generation by Source

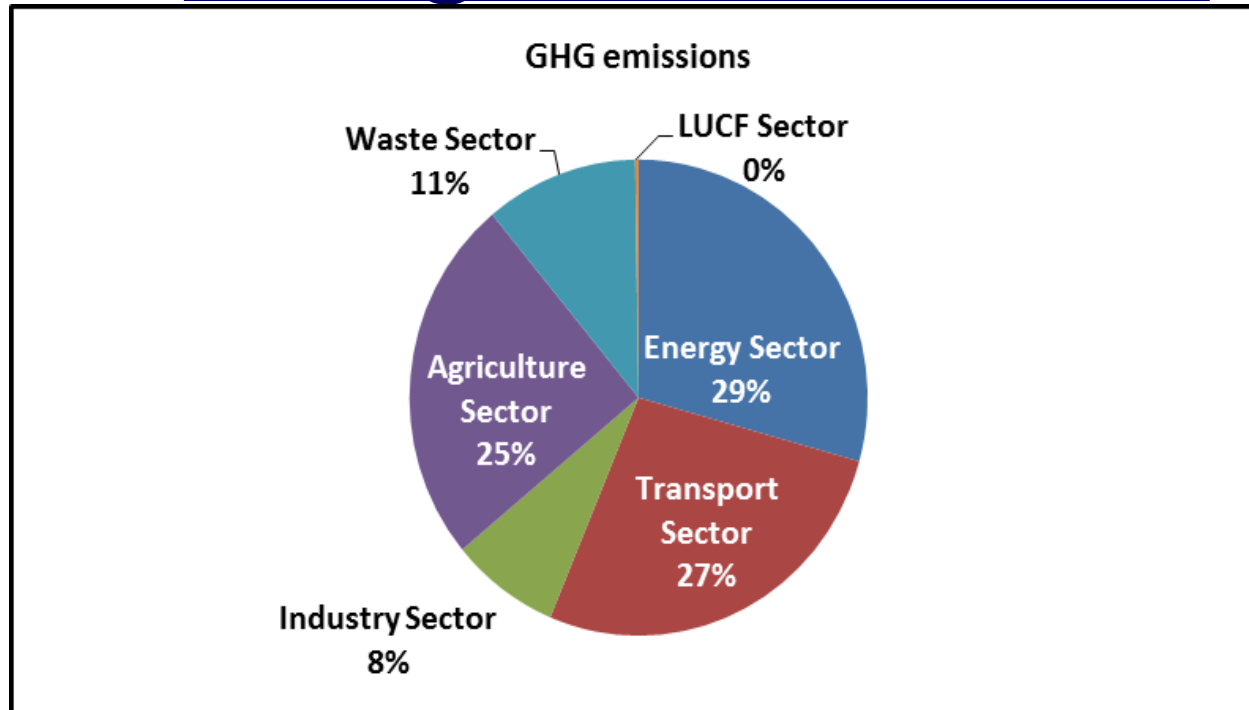
- Hydro : 30%
- Thermal : 60%
- NRE : 10%

NRE Capacities

- Small hydro : 290 MW
- Wind : 100 MW
- Solar : 10 MW
- Biomass : 20 MW

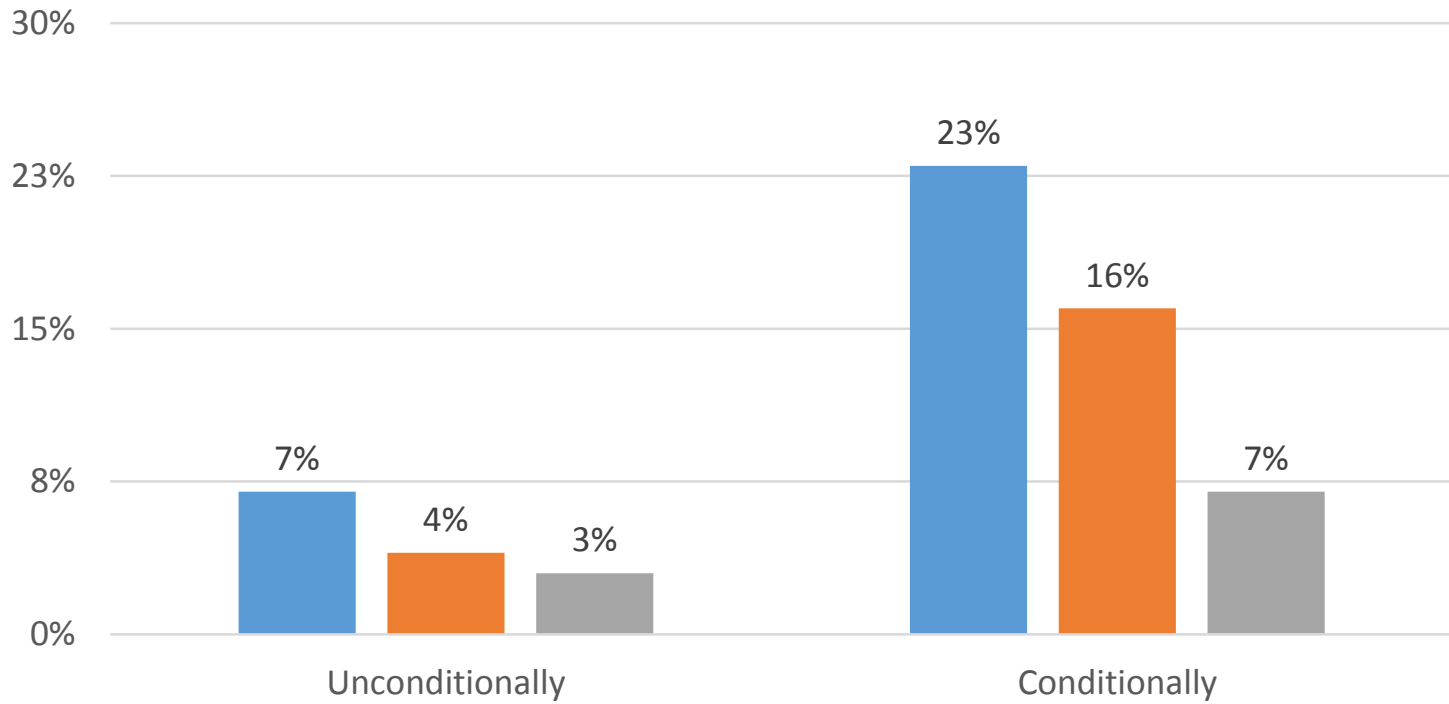
Background

Con...



- ❑ Country's total GHG emission represents <0.1% of global emissions
- ❑ Current per capita emission is 0.6tCO₂e.
- ❑ Country target : cumulative reduction 30 million tCO₂eq for the period 2015 – 2030.
- ❑ Emission reduction from Energy sector:
 - Reduce 20% GHG emission (approximately 36,010.2 Gg) by 2030
 - Unconditionally 4% (~ 7,202.04 Gg) (BAUs)
 - Conditionally 16% (~ 28,808.16 Gg) (BAUs)

INDCS TARGETS

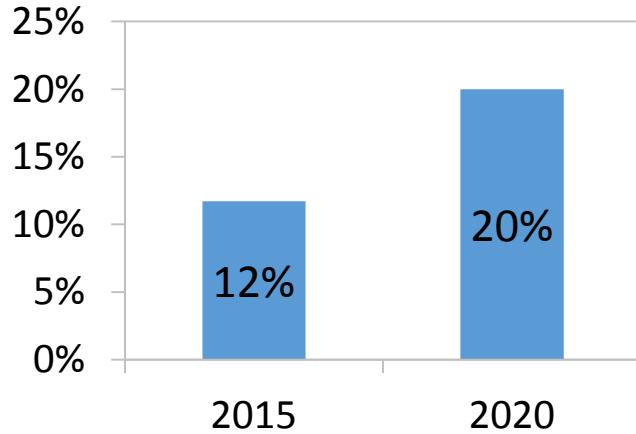


■ INDC

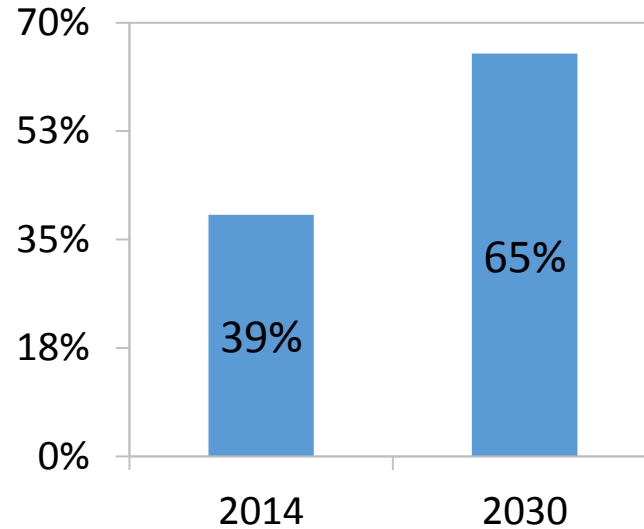
■ Power sector

Sector targets

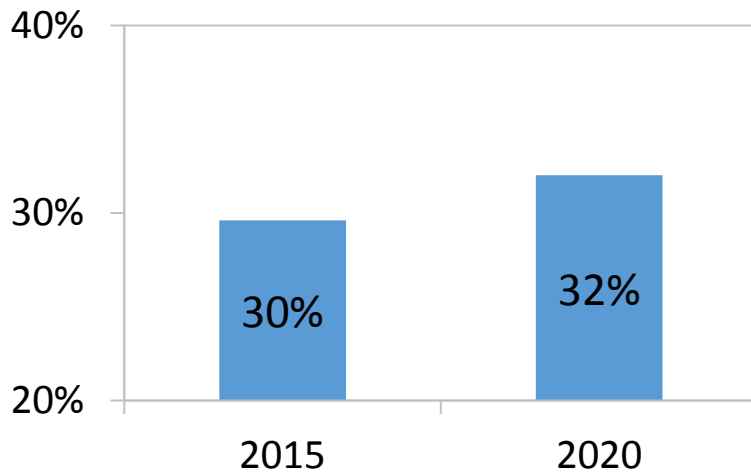
Share of NCRE in Electricity Mix



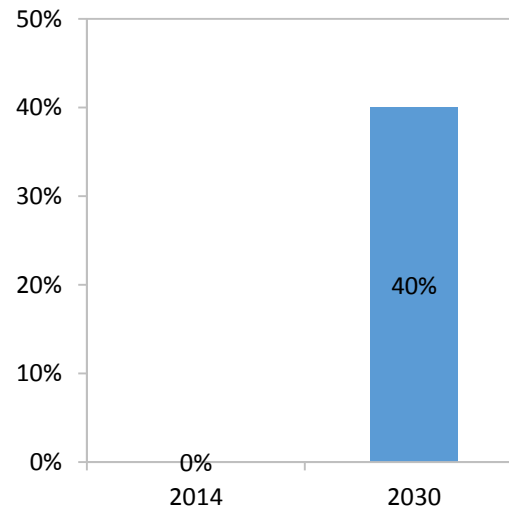
Waste collection rate



Forestry cover



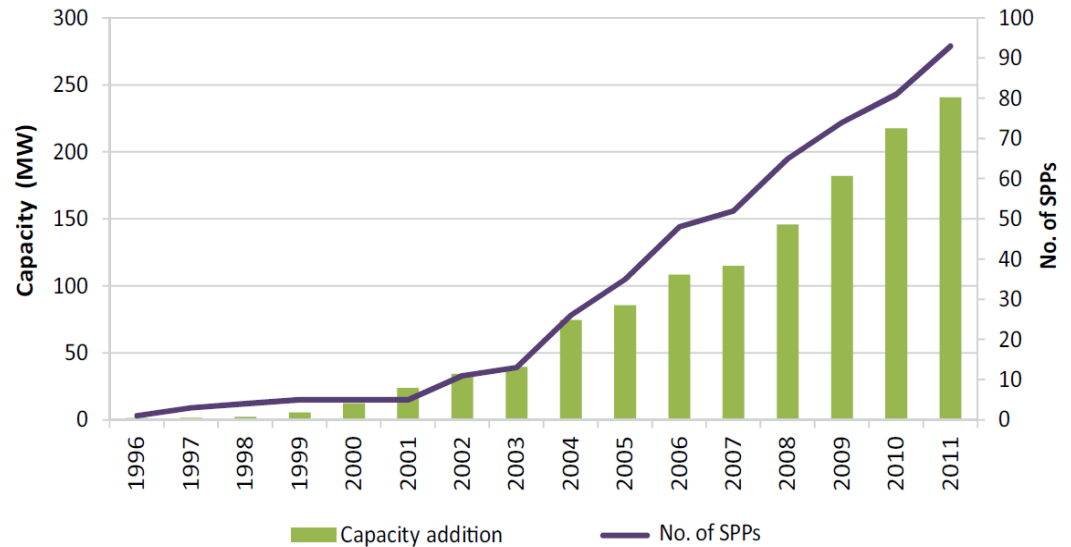
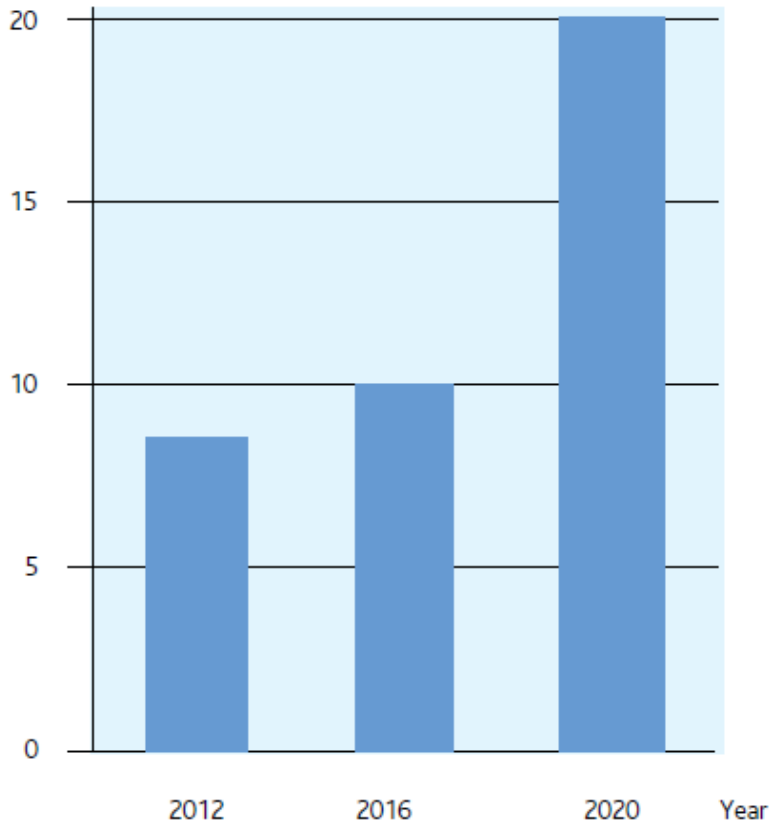
Share of green fuelled public transport



- **NCRE strategy**

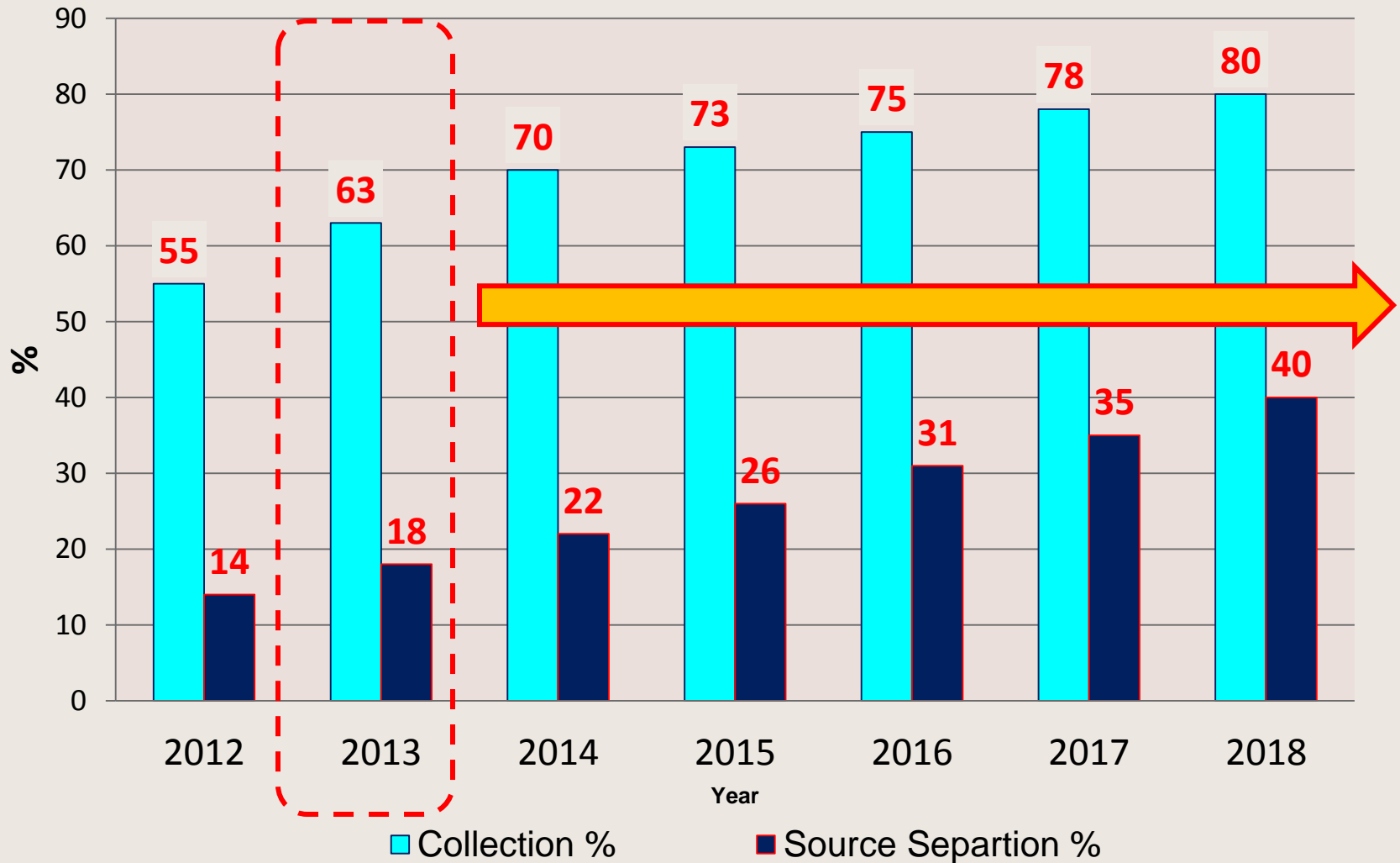
- **Grid Electricity**

- ✓ **The share of new REs: 10% by 2016 and 20% by 2020.**

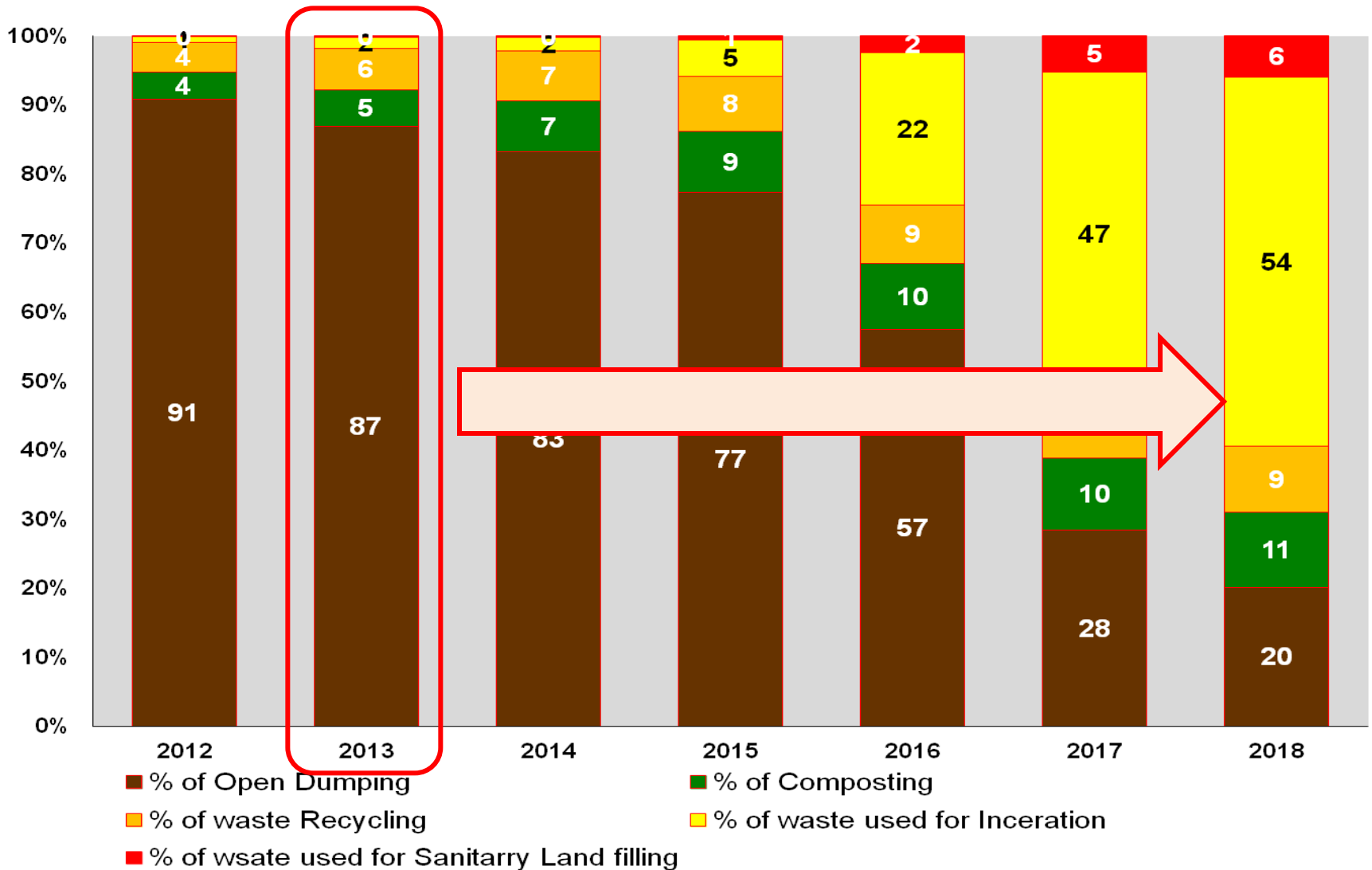


Year	Installed Capacity (MW)				
	Small Hydro	Wind	Biomass	Solar	Total
2013	234.1	73.7	11.5	1.4	321
2016	350	230	40	30	650
2020	400	400	140	160	1100

Waste Collection and Source Separation 2012 – 2018 targets

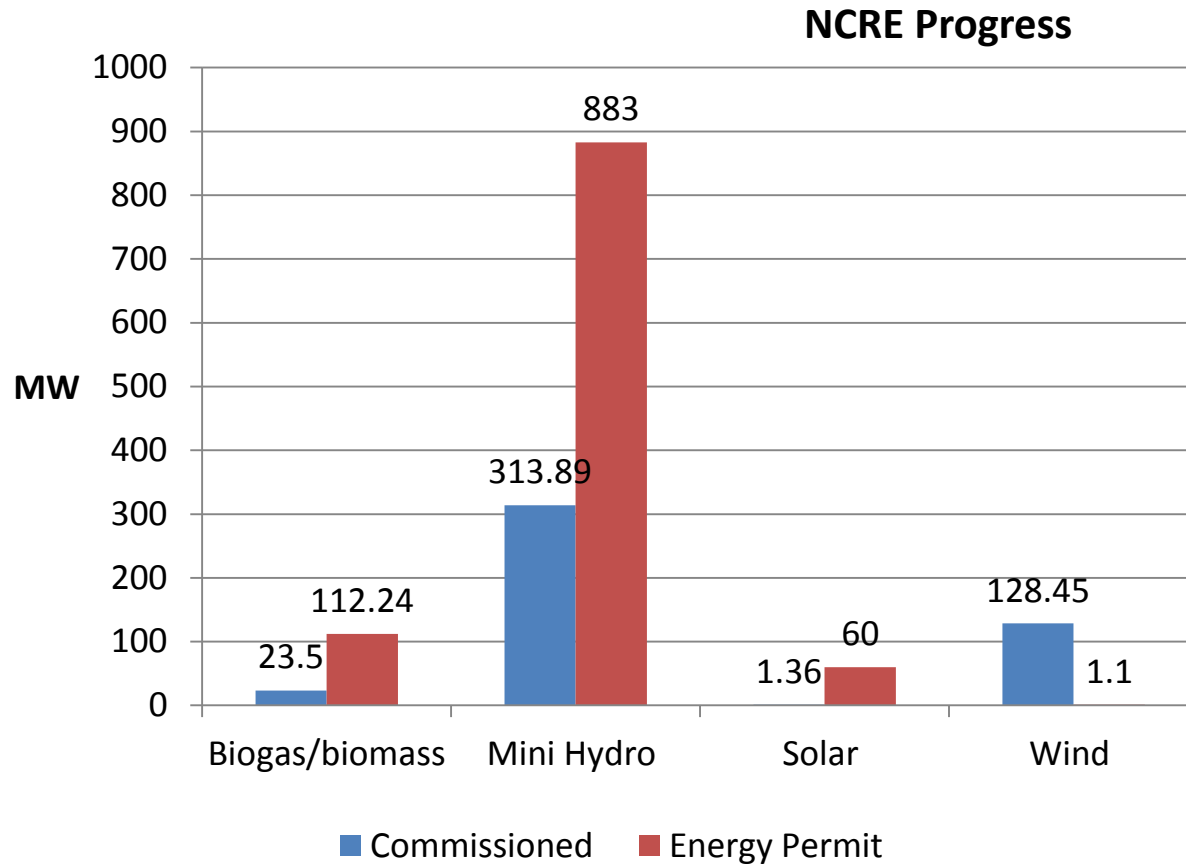


Emerging Municipal Solid Waste Management Scenario 2011 – 2018



SECTOR PROGRESS

NCRE progress

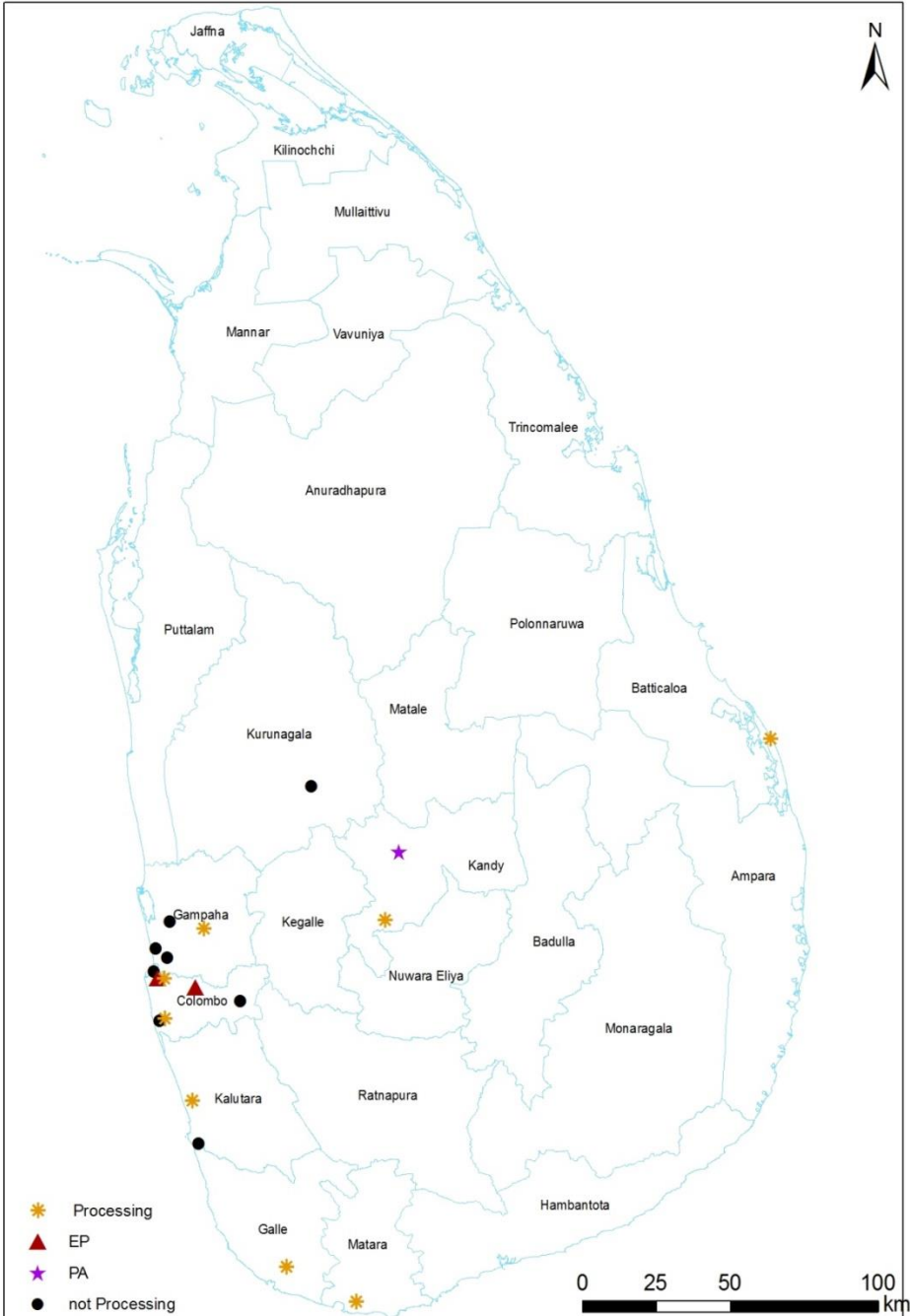


Rooftop 28 MW solar PV installations with a combined capacity of 13.3 MW by end of 2014.

Waste sector progress

Status	No.	Capacity (MW)
Processing* stage	12	120.4
PA	1	10.0
EP	2	20.0
Total	15	150.4

*Note : Initial stage; including request for grid proposal from CEB, recommendation for prefeasibility study etc.



Practical Achievements

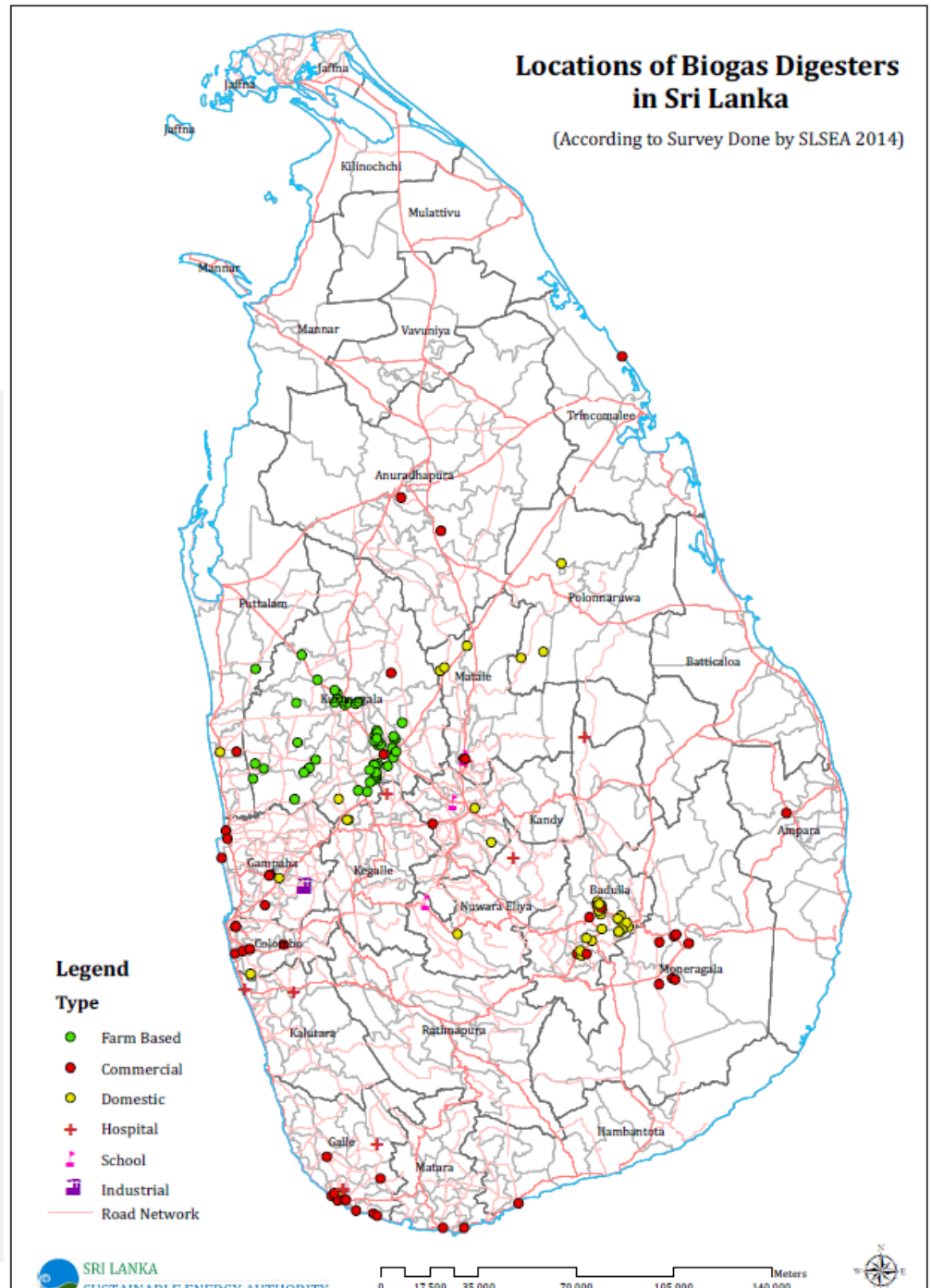
*1st grid connected biogas plant
in SL – 80 kW, 2012*

- Location : Gampaha, Wathuragama
- Type : Poultry farm
- Waste input : 5 ton/day poultry manure
- Capacity : 500 m³
- Daily biogas production : 1000 m³
- Project cost : LKRM 33

*1st sanitary landfill – Dompe 20,000 tons
capacity, for 15 years*



Domestic Biogas units - 5000- 6500



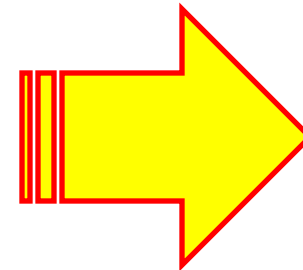
Medium Scale Composting Facility

	No of Composting Facilities	Designed Capacity Mt/Day	Present operational capacity	% of waste is used for composting					
				Present Condition	2014	2015	2016	2017	2018
Implementation of VI step “ Use Waste as Resources ” Composting and Bio methanization	21	210	128 (60%)	5%	7.5%	8.7%	9.5%	10.5%	11%

❖ Capacity Building of existing facility

- Improving present waste intake
- Optimizing of Diverting perishable waste
- Improving compost of quality

❖ Establishing new composting facility





Kaduwela MC



Bulathsinghal P.S.



Kotikawatha P.S.



Agalawatha P.S.



CHALLENGES

■ **Priority Interventions**

- ✓ **Concessionary financial support (Financial)**
- ✓ **Subsidy reforms (Technical)**
- ✓ **FIT for other RE technologies such as Solar PV, Concentrated Solar Power (Technical and capacity Building)**
- ✓ **Technical and financial barriers for W2E**
- ✓ **Study on Geothermal, Ocean Thermal Energy Conversion, and Wave Power (Technical & Capacity Building)**
- ✓ **Biomass collection, storage and clearing houses (Financial)**
- ✓ **Pump Storage (Financial & Technical)**

Acknowledgements for the organizers of ACEF 2016

Thank you !